

WHAT IS CLAIMED IS:

- 1 1. A method for communicating accumulated state information between
2 tasks in a learning system, comprising:
3 encoding initial state representation for a hypothetical learning task
4 indicating that no training instances have been received;
5 receiving a training instance;
6 if the training instance received reflects a new learning task, initializing a
7 new learning task state representation based on the hypothetical learning task state
8 representation;
9 updating each learning task state representation except the hypothetical
10 learning task using a target value stored for that task in the training instance; and
11 updating the state representation for the hypothetical learning task using a
12 default target value for the training instance.
- 1 2. The method of claim 1, further including producing predictors for each
2 learning task based on each learning task state representation.
- 1 3. The method of claim 1, wherein default target values reflect negative
2 examples.
- 1 4. The method of claim 2, further including an applier that produces a
2 prediction based on the predictor.
- 1 5. The method of claim 2 wherein the predictors are at least one of boolean
2 functions, regression models and neural networks.
- 1 6. The method of claim 2 where the predictors are used by another learning
2 system.
- 1 7. The method of claim 1 where the learning system is an incremental
2 supervised learning system.

1 8. A system for communicating accumulated state information between tasks
2 in a learning system, comprising:

3 an incremental learner that receives training instances;

4 a hypothetical learning task state representation storage that is initialized
5 to indicate no training instance have been received and that is updated with the default
6 target value for each new training instance;

7 a state representation storage that stores an initialized new learning task
8 state representation based on the hypothetical learning task state representation and that
9 stores updated state representation for each learning task based on the target value for the
10 received training instance and that updates the hypothetical learning task with a default
11 target value for each received training instance.

1 9. The system of claim 8, further comprising a predictor storage which
2 encodes a predictor based on each learning task state representation. .

1 10. The system of claim 8, wherein the default target values reflect negative
2 examples.

1 11. The system of claim 9, further comprising an applier that produces a
2 prediction based on the predictor.

1 12. The system of claim 9 wherein the predictor storage encodes at least one
2 of boolean functions, regression models and neural networks.

1 13. The system of claim 9 wherein the predictor storage is used by another
2 learning system.

1 14. The system of claim 8 where the learning system is an incremental
2 supervised learning system.